OXBOW LAKE (BLACKWATER SUBTYPE)

Concept: Oxbow Lakes are permanently flooded open water depressions in large floodplains, isolated from the river by channel shifts. Most are largely unvegetated, but they may contain sparse vegetation or patches of woody or herbaceous wetland plants of various kinds. The Blackwater Subtype covers examples on blackwater rivers. They typically have an edge zone containing *Taxodium distichum, Nyssa biflora, Liquidambar styraciflua, Planera aquatica*, or *Cephalanthus occidentalis*.

Distinguishing Features: Oxbow Lake communities are distinguished from Cypress–Gum Swamps by being wet enough to lack a closed tree canopy. They are distinguished from Semipermanent Impoundment communities by occurring in closed, undammed basins created by an abandoned river channel. This setting produces an aquatic community that is isolated from both the river and from stream input except in floods. The Blackwater Subtype can usually easily be distinguished by the character of the river and the occurrence of blackwater communities adjacent to it. The edge zone will lack brownwater species such as *Platanus occidentalis* and will probably contain only more broadly tolerant species such as *Taxodium distichum* and *Betula nigra*. On the Waccamaw and Lumber Rivers, as well as in states to the south, *Planera aquatica* may be abundant.

Synonyms: Not covered in NVC.
Ecological Systems: Atlantic Coastal Plain Small Blackwater River Floodplain Forest (CES203.249).

Sites: Oxbow Lake communities occur in large floodplains in segments of former river channels that have become isolated from the river by channel shifts. Deposition along the new river course has closed them off, turning them into basins that hold permanent water and are not connected to the river except during floods.

Soils: Oxbow Lake soils are treated as inclusions or mapped as water in soil surveys. The substrate is alluvial material. The bed presumably is initially sandy, but over time clay is deposited.

Hydrology: Oxbow Lakes are permanently flooded, drying, if ever, only in extreme drought. Except during floods, the water is stagnant. In the Blackwater Subtype, floods bring little in the way of sediment or nutrients.

Vegetation: The interior of Oxbow Lake communities is open water, generally without any emergent vegetation. The aquatic vegetation is poorly known. The edges generally are lined with trees, which in the Blackwater Subtype most often are *Taxodium distichum, Taxodium ascendens*, and on the Wacccamaw River, *Planera aquatica*. *Quercus lyrata, Quercus laurifolia*, or *Liquidambar styraciflua* may line them where the edges are steeper. Most descriptions do not note any emergent herbs.

Range and Abundance: No G-rank is assigned. In North Carolina, the Blackwater Subtype is known on all the large blackwater rivers but only the Waccamaw River has more than one or two.

They are more abundant in South Carolina. Oxbow Lakes are not recognized in the NVC but they potentially could occur wherever there are blackwater rivers.

Associations and Patterns: Oxbow Lakes are small patch communities. They may occur as isolated lakes or several may occur in close proximity. They are embedded in the floodplain community mosaic of Cypress–Gum Swamp and Blackwater Bottomland Hardwoods of various subtypes.

Variation: No patterns of variation have been identified.

Dynamics: Oxbow Lakes are geologically driven communities. They are created by channel shifts, which appear to be rare events in North Carolina's floodplains. When a meander is cut off, it initially remains connected to the river as a backwater. It becomes an oxbow lake only if sediment deposition blocks the connection. The abundance of backwaters, greater than of oxbow lakes, suggests that is not inevitable. On blackwater rivers, the lack of fine sediment means that lakes do not fill as rapidly as on brownwater rivers and they may persist until much slower deposition of organic matter fills them.

Comments: These communities are not well known. The vegetated portions of them, if any, resemble the primary successional communities of bars or backwaters along the rivers. The aquatic animal and planktonic communities can be expected to be more distinctive, because they offer an environment that is free from interaction with the river community for long periods. These communities are substantially aquatic rather than terrestrial but are part of the Palustrine System because of their small size.

Rare species:

References: